

REMARKS

Upon entry of the present amendment, claims 1-7, 9-13 and 15-19 will remain pending in the above-identified application and stand ready for further action on the merits.

In the instant reply, claims 1, 6, 10 and 12 are amended. The amendments to claims 1 and 10 find support in the application as originally filed, including page 3, lines 10-22 and in originally filed claim 1. The amendments to claims 6 and 12 find support at page 6, lines 5-10 of the specification. Accordingly, the amendments made herein to claims 1, 6, 10 and 12 do *not* incorporate new matter into the application as originally filed.

It is noted that the amendment to claim 1 is being made solely for purposes of clarity in an effort to address the Examiner's concerns under 35 USC § 112, second paragraph, as set forth at page 2 of the office action.

Accordingly, entry of the instant amendment and proper consideration of pending claims 1-7, 9-13 and 15-19 is respectfully requested at present, since the instant amendments to claims 1, 6, 10 and 12 do not incorporate new matter into the application as originally filed.

Interview with Examiner

The Applicants appreciate the Examiner's courtesy in granting a personal interview with the Undersigned and Mr. Koichi Niinaka of Kao Corporation on December 7, 2006. The comments made by the Examiner's in the interview are appreciated. In this regard, the Interview Summary form resulting from the interview provides an accurate summary of discussions taking place in the interview.

As a result of holding the interview, the amendments presented herein have been drafted so as to fully address the outstanding rejections of record, and the Examiner's concerns as set forth in the interview.

Claim Rejection – 35 USC § 112

Claim 1 has been rejected under the provisions of 35 USC § 112, second paragraph. Reconsideration and withdraw of this rejection is respectfully requested based on the amendment made herein to claim 1 and the following considerations.

Claim 1 as instantly amended particularly and distinctly sets forth the inventive discovery that the inventors regard as their own. The statute (*35 USC § 112, second paragraph*) requires no more. For example, as stated in the MPEP at §§ 2173.01 and 2173.02:

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. See MPEP § 2111.01. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in In re Swinehart, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own

preferences if other modes of expression selected by applicants satisfy the statutory requirement.

Claim Rejections – 35 USC § 103

The USPTO is maintaining two separate rejections, each being previously responded to in Applicants reply of February 21, 2006 and September 8, 2006. The two rejections are as follows.

Claims 1-7, 9-13 and 15-19 have been rejected under the provisions of 35 USC § 103(a) as being rendered obvious by **Nitta et al. EP '269** (EP 936,269).

Claims 1-7, 9-13 and 15-19 have also been rejected under the provisions of 35 USC § 103(a) as being rendered obvious by **Mort III, et al. US '354** (US 6,794,354).

Reconsideration of each of these maintained rejections is respectfully requested based on the following remarks, as well as those set forth in the prior replies of February 21, 2006 and September 8, 2006 (*which remarks are incorporated herein by reference in their entirety*).

The Present Invention and Its Advantages

As recited in pending claim 1, the present invention provides:

A process for preparing a high-bulk density detergent composition having a bulk density of 650 g/L or more, comprising the steps of:

- (A) blending a liquid acid precursor of an anionic surfactant with a water-soluble, alkali inorganic substance in an amount equal to or exceeding an amount necessary for neutralizing the liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate before a point of initiating formation of coarse grains in a neutralization mixture obtained during the course of neutralizing the liquid acid precursor, thereby neutralizing the liquid acid precursor, and beginning step (B) after a point of initiating formation of coarse grains in the neutralization mixture obtained during the course of neutralizing the liquid acid precursor; and
- (B) adding an inorganic powder and a liquid binder to the neutralization mixture obtained in step (A) and mixing a resulting mixture, wherein the inorganic powder is added to the neutralization mixture prior to the addition of the liquid binder to the neutralization mixture, and then the

inorganic powder is added to the neutralization mixture after the addition of the liquid binder to the neutralization mixture; and wherein the inorganic powder is added to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product.

Accordingly, instant amended claim 1 is now characterized by:

- (i) *in step (A) "blending a liquid acid precursor of an anionic surfactant with a water-soluble, alkali inorganic substance in an amount equal to or exceeding an amount necessary for neutralizing the liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate before a point of initiating formation of coarse grains in a neutralization mixture obtained during the course of neutralizing the liquid acid precursor, thereby neutralizing the liquid acid precursor";*
- (ii) *"beginning step (B) after a point of initiating formation of coarse grains in the neutralization mixture obtained during the course of neutralizing the liquid acid precursor";*
- (iii) *in step (B) "the inorganic powder is added to the neutralization mixture prior to the addition of the liquid binder to the neutralization mixture, and then the inorganic powder is added to the neutralization mixture after the addition of the liquid binder to the neutralization mixture" and*
- (iv) *in step (B) "the inorganic powder is added to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product".*

The above characterizations mean that in the claimed process, in step (A), neutralization of the liquid acid precursor occurs in a substantial absence (e.g., 5 wt % or less) of an alkali metal aluminosilicate before a point of initiating formation of coarse grains in a neutralization mixture obtained during the course of neutralizing the liquid acid precursor. They also mean that step (B) begins (is carried out) after a point of initiating formation of coarse grains in the neutralization mixture obtained during the course of neutralizing the liquid acid precursor". They further mean that in step (B) the inorganic powder is added to the neutralization mixture both prior to and after the addition of the liquid binder to the neutralization mixture, and the inorganic powder is added in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product.

Once a quantity of an alkali metal aluminosilicate powder (*such as zeolite*) is added in the neutralization process, deterioration of the alkali metal aluminosilicate takes place, so that the detergency of the detergent composition is lowered.

In addition, if the alkali metal aluminosilicate is added at once (e.g., all at one time), an aggregation of the alkali metal aluminosilicate takes place.

Thus, the present inventors have been able to unexpectedly solve previously encountered problems by:

- utilizing a substantial absence of an alkali metal aluminosilicate *before* a point of initiating formation of coarse grains in a neutralization mixture;
- adding the inorganic powder (e.g., alkali metal aluminosilicate) *after* a point of initiating formation of coarse grains in the neutralization mixture obtained during the course of neutralizing the liquid acid precursor; and
- adding the inorganic powder at several times (*i.e.*, not all at once).

Further, it is noted that by adding the inorganic powder in step (B) at a time of both prior to and after the addition of the liquid binder to the neutralization mixture, there can be exhibited the effect of accelerating the disintegration effect of the neutralization mixture (e.g., see page 14, lines 4-16 and page 19, lines 1-5 of the instant specification).

Still further, by addition of the liquid binder in such a manner in step (B), the adhesiveness of the liquid binder to granular surfaces can be advantageously reduced, whereby granulation can be suppressed (see page 19, lines 1-5 of the specification).

According to the process of the present invention, a high-bulk density detergent composition comprising a granular mixture having a high-bulk density of 650 g/L or more can be obtained, wherein the detergent composition has both excellent detergent properties and a small particle size (see page 20, lines 15-18 of the specification).

It is additionally noted that claim 10 as currently pending, recites as follows:

A process for preparing a high-bulk density detergent composition having a bulk density of 650 g/L or more, comprising the steps of:

- (a) blending a liquid acid precursor of an anionic surfactant with a water-soluble, alkali inorganic substance in an amount equal to or exceeding an amount necessary for neutralizing the liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate before a point of initiating formation of coarse grains in a neutralization mixture obtained during the course of neutralizing the liquid acid precursor, thereby neutralizing the liquid acid precursor, and beginning step (B) after a point of initiating formation of coarse grains in the neutralization mixture obtained during the course of neutralizing the liquid acid precursor; and
- (b) adding an alkali metal aluminosilicate and a liquid binder to the neutralization mixture obtained in step (a) and mixing a resulting mixture, wherein the alkali metal aluminosilicate is added to the neutralization mixture prior to the addition of the liquid binder to the neutralization mixture, and then the alkali metal aluminosilicate is added to the neutralization mixture after the addition of the liquid binder to the neutralization mixture; and wherein the alkali metal aluminosilicate is added to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product.

For the Examiner's information and understanding, the recited addition requirements set forth for the "inorganic powder" (see *claim 1*) and "alkali metal aluminosilicate" (see *claim 10*) in independent process claims 1 and 10 (*and the dependent claims that are based thereon*) has unexpectedly allowed the applicants to advantageously control particle size in a manner that was not heretofore expected. Such a discovery and the advantageous particle size results that are associated therewith *are the product of much more than mere optimization*, and are in no way obvious to those of ordinary skill in the art based on a review of the cited art references being applied by the USPTO against the pending claims.

Again, once a quantity of an alkali metal aluminosilicate (such as zeolite) is added in the neutralization process, a deterioration of the alkali metal aluminosilicate takes place, so that the detergency of the detergent composition being prepared is lowered. In addition, where the alkali metal aluminosilicate is added at once, an aggregation of the alkali metal aluminosilicate takes place.

The instant inventors have advantageously resolved these problems by utilizing a very specific neutralization process that takes place in a substantial absence of an alkali metal aluminosilicate (e.g., 5 wt. % or less) before a point of initiation of formation of coarse grains in a neutralization mixture, AND THEN, after a point of initiation of formation of coarse grains in the neutralization mixture, adding alkali metal aluminosilicate, and by adding the alkali metal aluminosilicate (inorganic powder) at several times, and by not adding it all at once.

Legal Standard for Determining Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Yueck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Koizah*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Leg*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002).

Distinctions Over the Cited Art

Nitta et al. EP '269

It is submitted that the cited Nitta et al. EP '269 reference does not teach or otherwise provide for each of the limitations recited in instant amended independent claims 1 and 10 (or any of the pending claims that depend therefrom).

More particularly, Nitta et al. EP '269 fails to provide any teaching regarding the precise timing of the addition of an "inorganic powder" (e.g., see independent claim 1) or an "alkali metal aluminosilicate" (e.g., see independent claim 10) or that by such a recited addition process one can advantageously control particle size in the inventive methods and thereby arrive at a high-bulk density detergent composition having a bulk density of 650 g/L or more.

Nitta et al. EP '269 also completely *fails* to see any importance in neutralizing a liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate before a point of initiating formation of coarse grains in a neutralization mixture obtained during the course of neutralizing the liquid acid precursor, as is recited in step (A) of independent claim 1 and step (a) of independent claim 10. Nitta et al. EP '269 also provides no teaching or motivation that would allow one skilled in the art to carry out the instantly claimed process including steps (A) and (B) as recited in pending claim 1 or steps (a) and (b) as recited in pending claim 10.

Directing the USPTO's attention to Table 6 of Nitta EP '269, the comparative data set forth in Table 6 can be divided into two types. The first type is that of Comparative Examples 18-19; the second type is that of Comparative Examples 11-17.

More particularly, Comparative Examples 18-19 of Nitta EP '269 are different from the instant invention being claimed in that a zeolite (inorganic powder) is added in the neutralization process in an amount of 7.7 parts by weight in Examples 18-19 (*or about 21-22 wt. %*) from the

start/beginning of the process. As such, this leads to a high possibility that deterioration of a zeolite takes place in Comparative Examples 18-19 of Nitta EP '269, so that the detergency of the resulting detergent composition is lowered.

Comparative Examples 18-19 of Nitta utilize approximately the same process of manufacture and formulation as Comparative Example 1 of the present invention. (see page 33, line 21 of the instant specification).

For the Examiner's convenience a copy of Table 6 of Nitta EP '269 is set forth below.

Table 6

Composition (parts by weight)	Comparative Examples									
	11	12	13	14	15	16	17	18	19	
Powder Blending										
STPP	7.00	7.00	7.00	7.00	7.00	7.70	7.70	-	-	
Sodium Carbonate	13.65	13.68	12.20	11.06	10.10	13.26	14.34	14.34	13.22	
Zeolite	-	-	-	-	-	-	-	7.70	7.70	
Powdery Sodium Sulfate	-	-	0.90	-	-	-	-	-	-	
Fluorescer	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
Addition of Reaction Initiating Agent										
48 wt% Aqueous NaOH Solution	0.51	-	0.51	0.61	0.66	0.37	0.27	0.27	-	
Neutralization										
LAS	10.19	10.19	10.19	12.22	13.24	7.47	5.43	5.43	10.19	
98 wt% Sulfuric Acid	-	-	-	-	-	-	-	-	-	
85 wt% Phosphoric Acid	-	-	-	-	-	-	-	-	-	
(Amount of Gas Blown) [L/min]	300	300	300	300	300	300	300	300	300	
Fatty Acid	-	-	-	-	-	0.49	0.49	0.49	-	
Nonionic Surfactant	-	-	-	-	-	1.40	2.45	2.45	-	
Addition of Liquid Ingredients and Surface Modification										
Acrylic Acid-Maleic Acid Copolymer	0.44	0.44	0.44	0.44	0.44	-	-	-	0.44	
Zeolite	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	
After-Blending										
Enzyme	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
Perfume	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	
Molar Ratio of Inorganic Acid/Liquid Acid Precursor [mol/mol]	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.04	

Likewise, the comparative data set forth for Comparative Examples 11-17 in Table 6 of Nitta EP '269 shows that no zeolite is used in the neutralization process. Table 6 of Nitta EP '269 also shows that 4.2 parts by weight (which is equal to 12.0 weight %)¹ of zeolite is added in the subsequent process steps of each of Comparative Examples 11-19.

As noted above, in Comparative Examples 11-19 of Nitta reference, 12.0 weight % of zeolite is added after its neutralizing step. However, the invention of Nitta and the instant invention are different in that while a zeolite is added after neutralization step in Example 1 of Nitta, whereas in the present invention, a zeolite is added after a point of initiation of formation of coarse grains of the neutralization mixture obtained during a course of a neutralization process in step (A). Thus, at best it appears that comparative Examples 11-17 of Nitta are similar to Comparative Example 2 of the present invention (e.g., *see pages 39-42 of the instant specification, particularly results set forth in Table 5 at page 42*), wherein an inorganic powder was not added during the course of the neutralization process or immediately after the neutralization process (e.g., *see page 39, lines 5-8*), but was added subsequently (*see Table 4, at page 41*).

As such, it is submitted that the teachings and disclosure of Nitta et al. EP '269 are incapable of either anticipating or rendering obvious the instant invention as claimed.

Mort III, et al. US '354

It is submitted that the cited Mort III, et al. US '354 reference does not teach or otherwise provide for each of the limitations recited in instant amended independent claims 1 and 10 (or

¹ "Parts by weight" means an actual weight like "g" or "kg". In order to convert "parts by weight" to "weight %", it is necessary that 4.20 parts by weight be divided by the total "parts by weight" of the other ingredients.

any of the pending claims that depend therefrom).

More particularly, Mort III, et al. US '354 fails to provide any teaching regarding the timing of the addition of an "inorganic powder" (e.g., *see independent claim 1*) or of an "alkali metal aluminosilicate" (e.g., *see independent claim 10*) or that by such a timing one can advantageously control particle size in the inventive methods and thereby arrive at a high-bulk density detergent composition having a bulk density of 650 g/L or more.

Mort III, et al. US '354 also completely *fails* to see any importance in neutralizing a liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate before a point of initiating formation of coarse grains in a neutralization mixture obtained during the course of neutralizing the liquid acid precursor, as is recited in step (A) of independent claim 1 or step (a) of independent claim 10. Mort III, et al. US '354 also provides no teaching or motivation that would allow one skilled in the art to carry out the instantly claimed process including steps (A) and (B) as recited in independent claim 1 or steps (a) and (b) as recited in independent claim 10.

Instead, Mort III, et al. US '354 at best simply teaches at column 7, lines 9-25 thereof, that in an optional intermediate step occurring after a dry neutralization step and before an agglomeration step, after transferring a neutralized mixture from a first mixer, one may optionally carry out a mixing step that can include an optional particulate material such as zeolite. Such disclosure is clearly incapable of providing any motivation to those of ordinary skill in the art that would allow them to arrive at the instant invention as claimed.

As such, it is submitted that the teachings and disclosure of Mort III, et al. US '354 are incapable of either anticipating or rendering obvious the instant invention as claimed.

Additional Comments

In support of the above contentions of non-obviousness over Nitta et al. EP '269 and Mort III, et al. US '354, one need only look at Example 1 of the instant invention (*see pages 24-26 of the instant specification*) and particularly the penultimate paragraph of Example 1 (*i.e., see page 24, lines 15-19 of the specification*), wherein it is disclosed as follows regarding the high-density detergent composition of Example 1, which was prepared in accordance with the instantly claimed inventive process.

The granules of the resulting detergent composition had an average particle size of 640 µm, a bulk density of 795 g/L, and a flowability of 7.1 seconds, whereby showing excellent powder properties. In addition, the granules had a relative ratio for the detergency rate of 0.998, whereby showing excellent detergency.

Accordingly, because the cited art of Nitta et al. EP '269 and Mort III, et al. US '354, do *not* provide any teaching which would motivate one of ordinary skill in the art to arrive at the instant invention as claimed in instant process claims 1 and 10, it follows that neither reference is capable of supporting an obviousness rejection of any of the pending claims. This conclusion is buttressed or supported by the unexpected and advantageous properties that are possessed by the high-density detergents (*e.g., Example 1 in the instant specification*) that can be produced with the instant inventive processes.

All contentions of non-obviousness held by the USPTO over the above cited art must be reconsidered, as the same contentions are not sustainable, in view of the amendments to the claims and remarks that are presented herein.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that all pending claims 1-7, 9-13 and 15-19 are allowable under the provisions of Title 35 of the United States Code.

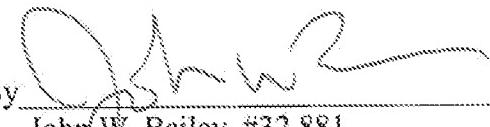
Should there be any outstanding matters that need to be resolved in the present application; the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated:

Respectfully submitted,

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